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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/611,867

07/03/2003

Tomohiro Okumura

2003_0919A

4175

513

7590

07/25/2006

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EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/611,867

Applicant(s)

OKUMURA ET AL.

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/12/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 11-17 is/are pending in the application.
- 4a) Of the above claim(s) 1,2,11 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,4,12-15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election of species A in the reply filed on 5/12/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 3-4, 12-15, and 17 withdrawn from consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable or generic generic or linking claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. US 2001/0017109 in view of Colpo et al., US 6,682,630.

Liu et al. shows the invention substantially as claimed including an apparatus 10 for plasma implantation, comprising: a vacuum container 14 defining a vacuum chamber therein; a table 82 provided in the chamber for supporting a substrate to which an impurity is implanted; a plasma generating element 46 provided outside the

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chamber; a first power source 66 for applying a first high frequency electric power to the element to form a plasma in the chamber; a first detector 74 comprising a single probe projecting into the vacuum chamber adjacent a plasma formation space for detecting a condition of the plasma; a second detector 78 for detecting a voltage or a current in the table; and a controller 62 for controlling a first power source according to the condition of the plasma detected by the first detector and/or the voltage or the current detected by the second detector, thereby controlling an implantation concentration of the impurity to be implanted (see fig. 1 and its description).

Liu et al. does not expressly disclose a second power source for applying a second high frequency electric power to the table. Colpo et al. discloses a second power source 34 for applying a second high frequency power to the table (see fig. 2A and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Liu et al. so as to have the second high frequency power of Colpo et al. because in such a way the ion energy to the substrate can be controlled.

Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. US 2001/0017109 in view of Colpo et al., US 6,682,630 as applied to claims 1 and 11 above, and further in view of Ishii, U.S. Patent 5,529,627.

Liu et al. and Colpo et al. are applied as above but do not expressly disclose wherein the first detector is capable of measuring and detecting an amount of light emitted from the plasma in the chamber. Ishii discloses a detector that is capable of

measuring and detecting an amount of light emitted from the plasma in the chamber (see fig. 10 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Liu et al. so as to replace the first detector of Liu et al. with the detector of Ishii because this is a suitable alternative detector for examining characteristics of the plasma, thereby allowing greater control over the process performed within the apparatus.

Furthermore, both Liu et al. and Colpo et al. do not expressly disclose wherein the controller controls both of the first and second high frequency electric power sources according to the condition of the plasma detected by the first detector and the voltage or the current detected by the second detector. Ishii discloses a central controller 77 used for controlling many of the elements of the apparatus (see fig. 10 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Liu et al. modified by Colpo et al. so as to have a controller such as Ishii which controls all the elements in the apparatus because in such a way the process performed within the apparatus can be precisely and accurately monitored and controlled.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. US 2001/0017109 in view of Colpo et al., US 6,682,630 as applied to claims 1 and 11 above, and further in view of Collins et al., U.S. Patent 6,444,085.

Liu et al. and Colpo et al. are applied as above but do not expressly disclose wherein the controller controls both of the first and second high frequency electric power sources according to the condition of the plasma detected by the first detector and the voltage or the current detected by the second detector. Collins et al. discloses a central controller 300 used for controlling many of the elements of the apparatus (see figs. 17A-17B and their descriptions). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Liu et al. modified by Colpo et al. so as to have a controller such as Collins et al. which controls all the elements in the apparatus because in such a way the process performed within the apparatus can be precisely and accurately monitored and controlled.

Response to Arguments

Applicant's arguments filed 2/6/06 have been fully considered but they are not deemed persuasive. Applicant argues that neither the Liu et al. or Colpo et al. reference disclose "a controller for controlling at least one of the first and second high frequency electric power sources according to the condition of the plasma detected by the first detector and the voltage or the current detected by the second detector". However, note that Liu et al. inputs both values from the detectors into the controller 62 which is used for controlling the first high frequency power source 66.

Furthermore, applicant's arguments with respect to claims 2, 11, and 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

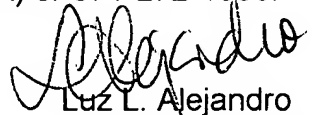
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Luz L. Alejandro
Primary Examiner
Art Unit 1763

July 24, 2006